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I claim:

- 1005554-012303
1. An acid resistant cement, which comprises:
    - a) a liquid alkali silicate with a  $\text{SiO}_2$  to  $\text{Na}_2\text{O}$  or  $\text{K}_2\text{O}$  ratio ranging from at least 2.2 to about 3.0:1 and present at about 20% to about 50%, by weight;
    - b) a vitreous silicate present at about 10% to about 50%, by weight, as a hardener;
    - c) a lime containing material present at about 2% to about 20%, by weight, and
    - d) an inert filler at about 10% to 40%, by weight.
  2. The composition of claim 1 wherein the vitreous silicate is a glass powder consisting essentially of ground container glass or plate glass.
  3. The composition of claim 1 wherein the vitreous silicate is coal fly ash.
  4. The composition of claim 1 wherein the lime containing material contains more than about 20% lime, by weight, and is selected from the group consisting of ground granulated blast furnace slag, ground steel slag, Portland cement, cement kiln dust, lime, and mixtures thereof.
  5. The composition of claim 1 wherein the inert filler is selected from the group consisting of silica

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flour, ground ceramics, clays, and mixture thereof.

Silica flour is preferred.

6. The composition of claim 1 including fibrous materials selected from the group consisting of ceramic, graphite, steel, cellulose fibers, synthetic organic fibers, and mixtures thereof.
7. A method for making acid resistant cement, comprising the steps of: mixing, by weight, a liquid alkali silicate having a  $\text{SiO}_2$  to  $\text{Na}_2\text{O}$  or  $\text{K}_2\text{O}$  ratio ranging from at least 2.2 to about 3.0:1 and present at about 20% to about 50% with a vitreous silicate present at about 10% to about 50% as a hardener, an inert filler of about 10% to about 40% and a lime containing material present at about 2% to about 20%.
8. The method of claim 7 including providing the vitreous silicate as a glass powder consisting essentially of ground container glass or plate glass.
9. The method of claim 7 including providing the vitreous silicate as coal fly ash.
10. The method of claim 7 including providing the lime containing material containing more than about 20% lime, by weight, and being selected from the group consisting of ground granulated blast furnace slag,

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ground steel slag, Portland cement, cement kiln dust, lime, and mixture thereof.

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11. The method of claim 7 including mixing a filler  
5 selected from the group consisting of silica flour, ground ceramics, clays, and mixture thereof.
12. The method of claim 7 including mixing a fibrous  
10 material selected from the group consisting of ceramic, graphite, steel, cellulose fibers, synthetic organic fibers, and mixtures thereof.
13. An acid resistant construction material, which  
comprises, by weight:
- 15 a) a liquid alkali silicate with a  $\text{SiO}_2$  to  $\text{Na}_2\text{O}$  ratio of about 2.58:1 and present at about 20% to about 50%;
- b) a vitreous silicate present at about 10% to about 50% as a hardener;
- 20 c) a lime containing material present at about 2% to about 20%, and
- d) an inert filler of 10% to 40%, by weight.
14. The acid resistant construction material of claim  
25 13 wherein the vitreous silicate is a glass powder consisting essentially of ground container glass or plate glass.
15. The acid resistant construction material of claim  
30 13 wherein the vitreous silicate is coal fly ash.

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16. The acid resistant construction material of claim 13 wherein the lime containing material contains more than about 20% lime, by weight, and is selected from the group consisting of ground granulated blast furnace slag, ground steel slag, Portland cement, cement kiln dust, lime, and mixture thereof.
17. The acid resistant construction material of claim 13 further including a fibrous material selected from the group consisting of ceramic, graphite, steel, cellulose fibers, synthetic organic fibers, and mixtures thereof.
18. The acid resistant construction material of claim 13 characterized as having been cured at an elevated temperature.
19. The acid resistant construction material of claim 13 characterized as having been cured at an elevated temperature for at least about 5 hours.
20. The acid resistant construction material of claim 13 including a filler selected from the group consisting of silica flour, ground ceramics, clays, and mixture thereof.